

Building Learning Goals and Consolidating Questions

Unit: Patterning and Algebra Breakout 2 to follow plenary 3

Grade

	<p>Math Learning Goals</p> <p>Building Learning Goals and Consolidating Questions</p> <ul style="list-style-type: none">• Study and represent growing patterns• Copy, extend, translate, create• Use building mats and position cards• Use the core (1st term) as the unit of repeat and consider number of repetitions• Write growing pattern rules (additive, iterative def'n)• Write position pattern rules (multiplicative thinking, explicit def'n)• Match the thinking to the Generalization strategies chart	<p>Materials</p> <p>BLM PandA 2.1 Curious Action Strips</p> <p>BLM PandA 2.2 Grid</p> <p>BLM PandA 2.3 Generalizations Strategies</p> <p>Book: One Duck Stuck</p> <p>Each table:</p> <ul style="list-style-type: none">• position numbers• Blue paper building mats• Position grid paper• Square tiles			
<p>75 min</p>	<p>Whole Group → A motivating activity Curious Actions</p> <p>Put one “Curious Actions” strip (BLM PandA 2.1 Eight Curious Actions) on each table. Each group should identify a recorder. Participants brainstorm “goals” that may have motivated each actions. (5 min)</p> <p>The point is that every action is motivated by someone’s goals. In this Minds On participants engage in fun talk about what “Goal” might have motivated each action.</p> <table><tr><td>Your significant other comes home with one dozen red roses.</td></tr><tr><td>Your colleague wants you to cover a shift at work.</td></tr><tr><td>Your sister offers to lend you her favourite jeans.</td></tr></table> <p>Make the point that although we are not (in K-4) starting with Expectations, we need to have learning goals in mind before we engage students in activities. We need to have a learning goal in mind so we know what to look for in their work and what questions to pose to focus their thinking.</p>	Your significant other comes home with one dozen red roses.	Your colleague wants you to cover a shift at work.	Your sister offers to lend you her favourite jeans.	
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<p>Minds On...</p> <p>10 min</p> <p>Did not complete Curious Actions.</p> <p>Watched video clip of classroom lesson “One Duck Stuck”. Discussed lesson goal and teacher moves.</p>					
<p>Action!</p> <p>35 min</p> <p>20 min</p>	<p>Groups of 4 → Grade level groups</p> <p>Read One Duck Stuck (Laurie’s version)</p> <p>How would you use blocks to <i>represent</i> the pattern in this picture book?</p> <p>How is your pattern different from the ones we looked at yesterday?</p> <p>(Growing pattern vs repeating patterns)</p> <p>Constant – the Duck – 1st term Duck and one animal</p> <p>Number of tiles = position number x <input type="text"/> + 1</p> <p>Use the grid B2.2 grid to re-present the pattern</p> <p>Talk about sequence copy, extend, translate (different representation), create</p> <p>In PPT discuss how instruction started with students (worm growing, pattern blocks)</p> <p>Groups of 2 → Grade level groups copy, extend, represent</p> <p>Your Turn</p> <ul style="list-style-type: none">• Pick one of the 2 growing patterns<ul style="list-style-type: none">◦ use building mats and position cards to copy the pattern◦ extend the pattern				
<p>20 min</p> <p>Due to plenary experiences, participants</p>					

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created own pattern rules and represented in two ways. Then, all participants created own representation of one pattern rule. Gallery walk and discussion of observations followed.

- represent your growing pattern rule
- represent your pattern with a graph
- represent your position pattern rule

Examine the Generalization schema and discuss what strategies you used to represent your patterns.

Consider learning goals from NUMBER SENSE AND NUMERATION to see if these lessons could help in the development of knowledge useful for expectations in these grades – leading to grade 4.

**Consolidate
Debrief**
15 min

Extend your H-map.

Each group gets their H from the wall and continues to complete each bar.

What else do you now know about

- repeating patterns
- growing patterns
- connections between them
- differences between them

Extension or for mid-week

Groups of 2 → Grade level groups – create linear growing patterns

Ask participants to each build the 2nd term of a linear growing pattern and challenge their partners to reproduce it by building the 1st and 3rd terms. Have them discuss whether the pattern they had in mind is the same as the pattern produced by the partner. What is the same? what is different?

Individually → Journaling

Participants return to their H-maps and in the horizontal bar, add thinking that are common to repeating and growing patterns and that lead to algebraic thinking. (multiple representations, generalizing, and multiplicative thinking.